



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/601,195 | 07/28/2000 | HIROMI SAITO | 106387 | 8637 |

25944 7590 09/25/2002

OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER

AKKAPEDDI, PRASAD R

ART UNIT PAPER NUMBER

2871

DATE MAILED: 09/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Seiko Epson Corp.

Office Action Summary

Application No.

09/601,195

Applicant(s)

SAITO ET AL.

Examiner

Prasad R Akkapeddi

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 28 July 2000 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings filed on July 28, 2000 are acceptable subject to correction of the informalities indicated on the attached "Notice of Draftperson's Patent Drawing Review," PTO-948. In order to avoid abandonment of this application, correction is required in reply to the Office action. The correction will not be held in abeyance.

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 1, 5, 6, 7, 9 –17, and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention: In particular the following statements are indefinite: (a) Claim 1: the substrates cannot 'emit' light and 'of light incident from one substrate, light incident from a clear viewing direction in a larger amount than a light incident from opposite of the clear viewing direction' is not clear, since substrates cannot enhance the amount of light. Also claim 11: micro lenses cannot emit a larger amount of light, they simply focus or defocus incident light.

(b) Claim 5: the statements 'opening area another substrate of the first substrate' and 'the second substrate from which light is emitted' are not clear. (c) Claims 1, 7, 9-17 and 19 recites the limitations "one and other substrates" in claim 1 and elsewhere. There is insufficient antecedent basis for this limitation in the claim. (d) Claim 16: the statement 'a non-lens area that allows light perpendicularly incident on the one substrate to travel in a straight line toward the liquid crystal formed on a center of the pixel in the microlens' is not clear. (e) Claim 20 recites the limitation "first substrate" in claim 19. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Oh et al (Oh) (U.S. Patent No. 5,844,644).

As to claim 1: Oh discloses a liquid crystal device (fig. 3) with a first substrate (110) with plurality of pixels with pixel electrodes (117), a second substrate (120) and a liquid crystal (Not numbered) sandwiched between the two substrates. From Fig. 3, one can see that there is a clear viewing direction and an opposite of the clear viewing direction. The viewing directions are as defined by the applicant.

As to claims 2-20: Oh discloses a black matrix (121) overlapping the pixel electrodes, a first opening and a second opening (Fig. 3), micro lenses (128) in substrate (120) that oppose each pixel region and substantially coincide with the center position of the opening area, the optical center position of the micro lens being offset toward the clear viewing direction (again, the clear viewing direction is as defined by the applicant), a second light shield (112) formed in a matrix, the micro lenses focusing light, a high refractive index layer (128), a low refractive index layer (125) (since micro lenses are formed in a high refractive index material), a medium refractive index layer (123), a non-lens area (untransmissive portion (Col 4, line 37-44), an additional layer (Col 4, lines 33-35) for the micro lenses, and the micro lenses being convex (Fig. 4). Oh also discloses that the LCD comprises a plurality of scanning (115) and plurality of data lines and in plane switching.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oh in view of Suzuki et al (Suzuki) (U.S. Patent No. 6,437,764).

a. Although Oh discloses a liquid crystal display device with all the features, Oh does not explicitly disclose the formation of a storage capacitor. The storage capacitor is very common for all the liquid crystal devices with switching

elements. Suzuki, on the other hand in disclosing a similar liquid crystal device, discloses the use of storage capacitor (Cstg). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the storage capacitor disclosed by Suzuki to the device disclosed by Oh for storing image information at the pixel electrode.

8. Claims 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oh in view of Hayashi et al (Hayashi) (U.S.Patent No. 6193376).

b. Although Oh discloses a liquid crystal device, Oh does not disclose the use of such a device in a projection display device. Using liquid crystal devices in projection displays is very common for displaying bright, uniform image with good resolution having smaller size and being economical. Hayashi, on the other hand discloses a liquid crystal projection device that use one or more of liquid crystal panels (65, 66, 67) and the at least one panel (66) (Fig. 22) being inclined with respect to the optic axis. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the liquid crystal device disclosed by Oh to the display device disclosed by Hayashi for displaying bright, uniform image with good resolution and to provide a low cost and compact device.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Nakanishi et al (U.S.Patent No. 5,969,832). Discloses a projection device with liquid crystal and micro lenses.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prasad R Akkapeddi whose telephone number is 703-305-4767. The examiner can normally be reached on 7:00AM to 5:30PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William L Sikes can be reached on 703-308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0530.

PR

September 19, 2002

William L Sikes
William L. Sikes
Supervisory Patent Examiner
Technology Center 2800